

Game Design Challenge Finalist Team 708

Team Name: Hatters Robotics

Location: Horsham, Pennsylvania USA

Game Name: Rumble in the Jungle

Game Overview:

When Mother Nature strikes, you never know what can happen or what can be discovered. An earthquake has struck the jungles that provide fruit to the villages and temples that were once hidden have now been discovered.

RUMBLE IN THE JUNGLE is played on a 27'x54' field, called THE RUINS, where two alliances of three teams each need to collect the FRUIT that has been displaced and find RELICS to restore the newly discovered TEMPLES in a two minute and thirty second MATCH. As teams rebuild the TEMPLE using the newly found RELICS, CAVITIES for collecting FRUIT are uncovered. Teams score the collected FRUIT in three CAVITIES located on the TEMPLE, while EXPLORERS return the scored FRUIT by placing it in CANOPIES located on the TREE. One EXPLORER stands in the TREE HOUSE to return the FRUIT to the CANOPIES. The EXPLORER can release the fruits back into the jungle for teams to continue to collect at any time. Once a CANOPY in the TREE has reached maximum capacity, any excess FRUIT will roll onto the field rather than land in the CANOPY.

The MATCH starts with all robots starting on the opposite side of the field from their DRIVER'S STATION, with their bumpers required to break the plane of the RIVERBANK. During the 20 second AUTONOMOUS Period, ROBOTS can fully break the RIVERBANK plane by moving forward, locate and score a RELIC, and score FRUIT in any of the CAVITIES. At T=10 seconds, an aftershock hits and an additional 40 FRUIT per TREE are released onto the field from the HOLLOW. At the end of the AUTONOMOUS Period, another aftershock happens, signaling the start of the TELEOPERATED Period. Teams then have 2 minutes and 10 seconds to locate the remaining RELICS needed to restore the TEMPLE and score FRUIT in the CAVITIES.

FRUIT starts the match in ROBOTS, in each CANOPY, and in each HOLLOW.

While restoring the TEMPLE with RELICS, take note that once six RELICS are placed or the TEMPLE is RESTORED, point values for FRUIT are adjusted and teams will need to think strategically if restoring the TEMPLE or collecting FRUIT is of more importance. RELICS will be placed throughout the RUINS in predetermined spots identified in the FIELD DRAWINGS.

Another aftershock strikes with 30 seconds remaining in the MATCH and is identified by the sound of thunder. Teams can now earn bonus points by successfully climbing the VINES that hang from their TREE BRANCH or parking on the ramp below it, known as ROOTED.

Scoring of the FRUIT is done via automatic scoring counters. The REFEREEs will score RELICS, autonomous ROBOT movement, VINE CLIMBS, and ROOTED ROBOT actions through the REFEREE panels.

Describe Notable Field Elements:

RUMBLE in the JUNGLE is played using a 5" diameter sphere called FRUIT and plastic molded rectangular prisms called RELICS. There are 500 FRUIT available during the MATCH. A total of 14 RELICS per QUALIFICATION MATCH are used (7 per ALLIANCE) and a total of 20 RELICS per PLAYOFF MATCH are used (10 per ALLIANCE).

The TEMPLE is located along the DRIVER STATION wall. ROBOTS can score FRUIT into three CAVITIES located on the TEMPLE. A ramp extends up to the TEMPLE. ROBOTS score RELICS by



attaching them to the TEMPLE FISSURES, located between the low and middle TEMPLE CAVITY. RELICS are attached using hook and loop tape.

The TREE is a 60" opening in each ALLIANCE'S DRIVER STATION wall that extends out into the RUINS. On the TREE there are 3 CANOPIES that EXPLORERS use to return scored FRUIT back into the RUINS. Each CANOPY can hold 50 FRUIT. Two VINES extend from the BRANCHES forming a "U" which ROBOTS can climb in ENDGAME. Above the ROOTS are 2 HOLLOWs, holding 20 balls each. The ROOTS are a ramp that goes around the width of the TREE.

The TREEHOUSE, located on the DRIVE TEAM side of the DRIVER STATION wall, is a 3' high platform for one EXPLORER to stand in and has safety railing on three sides. The EXPLORER places FRUIT into the CANOPIES and FRUIT is released from a CANOPY when the EXPLORER pulls a lever.

The RIVER spans the entire width of the RUINS and is supported on either side by a RIVERBANK. The RIVERBANK is 12" high and has a 1:4 slope. Three BRIDGES connect the two sides of the RIVERBANK and are spaced evenly across the RIVER, with a BRIDGE designated for each ALLIANCE and the third BRIDGE available for both ALLIANCES.

What are robots expected to do?

RUMBLE in the JUNGLE begins with an AUTONOMOUS period where ROBOTS attempt to locate and score RELICS and score FRUIT in temple CAVITIES, without any DRIVE TEAM control or input. ROBOTS can start the match with up to 20 FRUIT preloaded into their machine. When T=10 seconds remain in the autonomous period, ROBOTS can position themselves to collect and score the FRUIT that is released from the HOLLOW. ROBOTS may not cross the RIVERBANK or BRIDGES during the AUTONOMOUS period.

Once the AUTONOMOUS period ends, a TELEOPERATED period starts, where DRIVERS now take control of the ROBOTS. During this time, ROBOTS will collect and score FRUIT into TEMPLE CAVITIES and locate and score RELICS on the TEMPLE. EXPLORERS pull a lever on the CANOPIES, releasing scored FRUIT back into the RUINS or into a waiting ROBOT.

At T=30 seconds remaining of the TELEOPERATED period, ENDGAME begins. ROBOTS can continue to score FRUIT and RELICS or work with their ALLIANCE to INHABIT the TREEHOUSE. This can be accomplished by ROBOTS climbing the VINES that hang from the TREE BRANCHES or being ROOTED on the ramp under the TREE. The MATCH ends and ROBOTS are scored for their ENDGAME points once T=0.

ROBOTS will be protected if they are in their safe zone or on the RIVERBANK and contact by an OPPOSING ALLIANCE ROBOT in these zones will draw a penalty. ROBOTS should only cross their ALLIANCE BRIDGE or the ABANDONED BRIDGE. Parking in front of an opposing ALLIANCE'S BRIDGE or the ABANDONED BRIDGE will incur penalties. During ENDGAME, an OPPOSING ALLIANCE ROBOT may not come in contact with a ROBOT that is touching their TREE, VINES or the ROOTS. Opposing ALLIANCE ROBOTS are not permitted to have their ROBOT bumpers cross the perpendicular plane of the ramp below the TEMPLE.

Did you use the Game Design Challenge Element in your concept?

Yes

If yes, how?

The chain element was incorporated into our game design in two ways: the BRIDGES and the VINES. When designing the BRIDGES, we wanted them to look natural and mimic what a bridge would look like in real life. As we were trying to make the game look jungle-like and old, we wanted the BRIDGES to resemble wooden bridges that cross a RIVER, so we designed the wooden bridges with chain being used



to piece the planks together, while allowing for a slight arch. This makes the BRIDGES functional while still matching the aesthetics of the game design.

The second use of the chain element is the VINES. The VINES are made of chain and are hanging from the BRANCHES. This helps to make the VINES look real, look like they are hanging, and be a strong enough material to support ROBOTS for an ENDGAME CLIMB. Like with the use of chain for the BRIDGES, this was done to use chain in a visually appealing yet logical and functional way.